

S/046/63/009/001/010/026
B104/B186

AUTHORS: Naugol'nykh, K. A., Soluyan, S. I., Khokhlov, R. V.

TITLE: Spherical waves of finite amplitude in a viscous heat-conducting liquid

PERIODICAL: Akusticheskiy zhurnal, v. 9, no. 1, 1963, 54-60

TEXT: In the studies of N. M. McLachlan and A. L. Meyers (Proc. Phys. Soc., 1935, 47, 644-656) and K. A. Naugol'nykh (Akust. zh., 1959, 5, 1, 80-84) non-linear distortion of the shape of spherical waves during propagation is described by a gradual growth of the high-frequency components of the waves which have initially been monochromatic. At great distances from the emitter these solutions do not hold. Starting with the equation of motion

$$\rho \left(\frac{\partial v}{\partial t} + v \frac{\partial v}{\partial r} \right) = -\frac{\partial p}{\partial r} + b \left[\frac{1}{r} \frac{\partial^2 (rv)}{\partial r^2} - \frac{2}{r^3} v \right], \quad (1)$$

with the equation of continuity

$$\frac{\partial \rho}{\partial t} + v \frac{\partial \rho}{\partial r} + \rho \frac{\partial v}{\partial r} + 2 \frac{\rho v}{r} = 0 \quad (2)$$

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and with the equation of state

$$p = p_0 + c^2(p - p_0) + \frac{\gamma - 1}{2} \frac{p_0}{c_0^2} (p - p_0)^2. \quad (3),$$

the propagation of convergent and divergent spherical waves in a non-linear viscous and heat-conducting medium is studied. Here v , q , p , r and c are symbols commonly used in gasdynamics, $b = \frac{4}{3}\eta + \xi + \kappa(1/c_v - 1/c_p)$, η and ξ are the coefficients of shear and volume viscosity, κ is the heat conduction coefficient, $\gamma = c_p/c_v$. The equations are solved by means of an approximation method assuming $1/k_r$ to be a small parameter. k is the wave number, r the radius of the sphere. By means of the approximate solutions, the formation and the resorption of the wave fronts are studied and it is shown that the problem studied is equivalent to the problem of propagation of plane waves in a medium in which viscosity varies exponentially. There are 3 figures.

ASSOCIATION: Akusticheskiy institut AN SSSR, Moskva (Acoustics Institute
AS USSR, Moscow)
SUBMITTED: December 11, 1961
Card 2/2

ACCESSION NR: AP3000820

S/0046/63/009/002/0192/0197

AUTHORS: Naugol'mykh, K. A. (Moscow); Soluyan, S. I. (Moscow); Khokhlov, R. V. (Moscow)

TITLE: Nonlinear interaction of sound waves in an absorbing medium

SOURCE: Akusticheskiy zhurnal, v. 9, no. 2, 1963, 192-197

TOPIC TAGS: nonlinear interaction, sound wave, absorbing medium, high frequency wave, spectral maximum, amplitude modulated wave, hydrodynamic medium, Reynolds number, spherical wave, cylindrical wave

ABSTRACT: The authors study nonlinear interaction of sound waves in a viscous, heat-conducting medium. They investigate the case where waves of various frequencies, arising as a result of interaction, weakly decaying, may exceed in intensity the original high-frequency waves, which leads to displacement of the spectral maximum of the process in the region of low frequencies. They show that with propagation of an amplitude-modulated wave in a nonlinear hydrodynamic medium, detection of a signal is realized. They study the problem for both small

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ACCESSION NR: AP3000820

and large Reynolds numbers. The results are generalized to spherical and cylindrical waves. Orig. art. has: 20 formulas and 4 figures.

ASSOCIATION: none

SUBMITTED: 29Jun62

DATE ACQ: 03Jun63

ENCL: 00

SUB CODE: PH, AI

NO REF SOV: 005

OTHER: 001

Card 2/2

L 54680-65

EWI(1)/EPF(n)-2/EED(b)-3 Pu-4 IJP(c) WW/CS

ACCESSION NR: AT5009752

UR/0000/64/004/000/0043/0049

17
B+

AUTHOR: Soluyan, S. I.

TITLE: Nonlinear theory of magneto-acoustic waves within a viscous thermally and electrically conducting medium

SOURCE: Soveshchaniye po teoreticheskoy i prikladnoy magnitnoy gidrodinamike. 3d, Riga, 1962. Voprosy magnitnoy gidrodinamiki (Problems in magnetic hydrodynamics); doklady soveshchaniya, v. 4. Riga, Izd-vo AN LatSSR, 1964, 43-49

TOPIC TAGS: magnetoacoustic waves, nonlinear magnetohydrodynamic process, conducting medium wave propagation, wave front scattering

ABSTRACT: Using second order approximations of the magneto-acoustic wave equation, the author discusses nonlinear wave processes within weakly nonlinear and weakly dissipative media. He studied the creation and scattering of wave fronts, the spatial scales of such processes, the double formation of shock wave fronts in convergent cylindrically-symmetric waves, the nonlinear interaction of magnetoacoustic waves, and the propagation of amplitude-modulated waves. The magnetohydrodynamic (MHD) medium displayed properties of a quadratic detector. Major emphasis

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ACCESSION NR: AT5009752

was laid on the study of nonlinear effects at high magnetic Reynolds numbers, although the derivation of the approximate MHD equations was carried out for an arbitrary MHD analog of the Reynolds number. Orig. art. has: 11 formulas and 2 figures.

ASSOCIATION: None

SUBMITTED: 11Aug64

ENCL: 00

SUB CODE: ME

NO REF SOV: 002

OTHER: 000

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Card 2/2

L 30392-66 ENT(1)

ACC NR: AP0016828

SOURCE CODE: UR/0046/66/012/002/0188/0191

AUTHOR: Zabolotskaya, Ye. A.; Soluyan, S. I.; Khokhlov, R. V.

ORG: Department of Physics of Vibrations, Moscow State University (Kafedra fiziki kolebaniy Moskovskogo gosudarstvennogo universiteta)

TITLE: Parametric amplifier for ultrasound

SOURCE: Akusticheskiy zhurnal, v. 12, no. 2, 1966, 188-191

TOPIC TAGS: ultrasonic amplification, parametric amplifier, Cauchy problem,

CAUCHY PROBLEM

ABSTRACT: In view of recent interest in the problem of ultrasound amplification, the authors propose a parametric ultrasound amplifier, in which use is made of interaction of two intersecting waves propagating in an isotropic solid. The wave of the signal is directed at an angle to the pump wave, thus causing spatial separation of the combination waves. At a certain angle between the directions of the signal and pump wave propagations the condition for effective interaction is satisfied for one of the combination waves. The theory of this amplifier is presented and an estimate of the gain is given. The problem reduces to a Cauchy problem, so that the solution obtained is unique. The nonlinearity of the medium gives rise to pump harmonics, so that at a certain distance from the input to the system the pump wave will have a sawtooth form. It is shown that if the condition of effective interaction of the waves is satisfied for the fundamental harmonic components, it is not satisfied for the higher combination components. It is concluded on the basis of the results that

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UDC: 534.222

L 30392-66

ACC NR: AP6016828

a parametric amplifier for ultrasound is feasible. Orig. art. has: 1 figure and
11 formulas. [02]

SUB CODE: 20/ SUBM DATE: 04Dec64/ ORIG REF: 004/ OTH REF: 002/ ATD PRESS:

5017

Card 2/2 CC

ACC NR: AP7000145

SOURCE CODE: UR/0046/66/012/004/0435/0442

AUTHOR: Zabolotskaya, Ye. A.; Soluyan, S. I.; Khokhlov, R. V.

ORG: Chair of Oscillations Physics, Moscow State University (Kafedra fiziki kolebaniy Moskovskogo gosudarstvennogo universiteta)

TITLE: A combined cadmium sulfide ultrasound amplifier

SOURCE: Akusticheskiy zhurnal, v. 12, no. 4, 1966, 435-442

TOPIC TAGS: ultrasound, ultrasound amplification, ultrasound parametric amplification, cadmium sulfide ultrasound amplifier, CdS ultrasound amplifier, piezoelectric ultrasound amplifier

ABSTRACT: An ultrasound amplifier utilizing the nonlinearities of CdS crystals is described and the mechanism of amplification analyzed. The nonlinearity stemming from the interaction of free electrons with piezoelectric fields makes it possible to amplify the signal wave parametrically at the expense of the pumping wave, while application of a constant electric field to the crystal compensates for acoustic damping of the oscillations. The aim of this approach is to expand the mechanism of amplification to combine it with the parametric interaction between the signal and the pumping waves under conditions of a nonlinear interdependence of the carrier flow and the electric field of the acoustic wave within the crystal. Although the nonlinearity coefficient is dependent on too many parameters to be analyzed in general terms, some numerical computations indicate the feasibility of a parametric amplification.

UDC: 534-16:621.375

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ACC NR: AP7000145

tion. The high degree of nonlinearity of CdS, the possibility of maintaining the acoustic waves by application of a constant field, and the low absorption of the material, all contribute to the conditions under which the amplification takes place sufficiently far below the self-excitation point, thereby ensuring a lower noise level than that of existing types of acoustic amplifiers. Orig. art. has: 2 figures, 1 table, and 31 formulas.

SUB CODE: 20/ SUBM DATE: 12Feb65/ ORIG REF: 003/ OTH REF: 007/ ATD PRESS: 5108

Card 2/2

BELETSKIY, F.A., dots., kand. fiz.-matem.nauk; BIREUN, N.Ye., inzh.;
KAZANOV, V.A., inzh.; KLYUSHIN, S.M., dots.; KRUCHININ, V.L.,
inzh.; MARCHENKOV, Ya.P., dots.; PISKAREV, V.S., inzh.;
RUTSKIY, A.I., inzh.; SOKOLOV, N.M., dots., kand. tekhn. nauk;
SOLUYANOV, L.N., inzh.; SHKARBANOV, Petr Fedorovich, dots.,
kand. tekhn. nauk; PANOV, V., red.; LUKASHEVICH, V., tekhn.red.

[Handbook for electricians] Spravochnik elektriika. Saratov,
Saratovskoe knizhnoe izd-vo, 1963. 458 p. (MIRA 17:1)

VAKHLER, Boris L'vovich, kand. tekhn. nauk; SOLUYANOV, P.A., inzh.,
retsenzent; MATVEYEV, N.A., kand. tekhn. nauk,
retsenzent; KOZHINOV, V.F., doktor tekhn. nauk,
retsenzent

[Ozonization of the water of the Northern Donets-Donets
Basin Canal for drinking purposes] Ozonirovanie vody ka-
nala Severnyi Donets-Donbass dlia pit'evykh tselei. Mo-
skva, Stroiizdat, 1965. 83 p. (MIRA 18:12)

POPOV, K.V.; SOLUYANOV, V.M.

Dependence of the cold brittleness of cast steel on the ratio
between the manganese content and that of carbon. Metalloved. i
term. obr. met. no.7:35-37 J1 '64. (MIRA 17:11)

BEUZAYEV, V.: SOLUYANOVA, A.

Refrigeration and Refrigerating Machinery

Freezing Units. Khol. tekhn. 29 no. 2, 1952.

Monthly List of Russian Accessions, Library of Congress, September 1952. Unclassified.

SOLUYANOVA, N.

Regulate the use of cash registers. Sov. tor g. 34 no.11:30-32 M
'60. (MIRA 13:11)

(Cash registers)

L 57725-65 EWP(e)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b) Pf-4
 UR/0137/65/000/005/0039/0039
 ACCESSION NR: AR5015172

SOURCE: Ref. zh. Metallurgiya, Abs. 50232

AUTHOR: Yukin, G. I.; Shibryayev, B. F.; Soluyanov, Ye. K.; Volgin, V. I.

TITLE: Application of induction heating in powder metallurgy

CITED SOURCE: Tr. 7 Vses. nauchno-tekhn. konferentsii po poroshk. metallurgii.
 Yerevan, 1964, 122-131

TOPIC TAGS: powder metallurgy, induction heating, filter material, powder metal,
 low carbon steel, reduction, reducing annealing, annealing

TRANSLATION: An investigation has been made of the possibility of using an induction heater for reducing annealing of sprayed powders made of low carbon steel and for sintering of filter elements. Reducing annealing of powders was carried out in a special apparatus with a type LG-61 or LPZ-67 generator. Hydrogen with a dew point of from -20 to -25° was the reducing agent. The optimum temperature for reducing annealing was 800°. Reducing annealing of powders with fine fractions (less than 0.2 mm) is difficult; therefore, reducing annealing should be used for a mixture of fine and coarse powders. An apparatus

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L 57723-65

ACCESSION NR: AR5015172

has been developed for the reducing annealing of metallic powder. The proposed capacity of the installation is 100 kg/hr, the cost of reducing one kilogram of powder is approximately 2.2 kopeks. In the sintering of filter elements, a uniform density distribution is essential. Nonuniform density of the briquet causes local overheating and the formation of fissures and fusing. The speed of heating and of cooling after sintering must be controlled strictly. Use of polyvinyl alcohol as a plasticizer instead of paraffin permits increasing the heating speed 4 times. Filter elements sintered in an induction heater are not inferior to filters sintered under conventional conditions, and even exceed them in mechanical strength. V. Kvin.

SUB CODE: MM

ENCL: 00

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BATANOV, Aleksandr Ivanovich. Prinimali uchastiye: SYSOLIYATIN, S.A.,
kand. tekhn. nauk; ARASHKEVICH, V.M.; KVASKOV, A.F., doktor tekhn.
nauk, retsenzent; GIBELEV, I.T., inzh., retsenzent; KRASNOV, G.V.,
inzh., retsenzent; NIKOLENKO, S.V., inzh., retsenzent; SOL'VAR,
A.V., inzh., retsenzent; CHURIKOV, A.N., inzh., retsenzent; ROMANOVA,
L.A., red. izd-va; BOLDYREVA, Z.A., tekhn. red.; PROZOROVSKIY, Ye.G.,
tekhn. red.

[Iron ore dressing] Obogashchenie rud chernykh metallov. Moskva,
Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 423 p.
(MIRA 14: 9)

1. Obogatitel'nyye fabriki Gornogo upravleniya Magnitogorskogo me-
tallurgicheskogo kombinata (for Gibelev, Krasnov, Nikolenko, Sol'-
var, Churikov)

(Ore dressing)

SOL'VAR, A.V.

Changing the system of coal preparation. koks i khim. no.9:17-20
'61. (MIR, 15:1)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Magnitogorsk--Coal preparation)

SOL'VAR, A.V.; MEDVEDEV, A.V.; SOROKIN, A.F.

Measures for improving the operation of flotation section. Loks
i khim. no.9:24-27 '61. / (MIRA 15:1)

1. Magnitogorskiy metallurgicheskiy kombinat (for Sol'var, Medvedev):
(Magnitogorsk--Coal preparation plants--Equipment and supplies)

SEMENOV, I.A.; MEDVEDEV, A.V.; SOL'VAR, A.V....

Automation of the process of coal slurry flotation. Koks i
khim. no.10:6-13 '63. (MIRA 16:11)

1. Institut goryuchikh iskopayemykh AN SSSR (for Semenov).
2. Magnitogorskiy metallurgicheskiy kombinat (for Medvedev,
Sol'var).

1. SOLVEY, A.
2. USSR (660)
4. Gardening
7. Communication workers cultivated a garden, Sov.sviaz. no. 10, 1951.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

Distr: 4E2c

Some problems of the carbide furnace control. S. G. Solov'ev. *Khim. Prom.* 1957, 371-3. From general known data concerning the power input of large 3-phase furnaces, and by assuming $\cos \phi$ -factor limitations between 0.8 and 0.9, characteristic curves for current-voltage of a 30-Mw. furnace were derived and the optimum distance of the electrode ends from the furnace bottom were detd. The calcs. show that this distance is relatively const. under different input conditions, varying from 11.5 to 30 Mw. Accordingly, within these variations optimal conditions, e.g. $\cos \phi = 0.9$, can be realized. This realization, however, requires a certain flexibility of the transformers. Their power output should not be limited to a const. value at different voltage steps.

L. Ryshkevitch

RM

SOV/120-59-1-21/50

AUTHORS: Vorob'yev, A. A., Korolev, V. A., Solyakin, G. Ye.

TITLE: Measurement of the Grid Current in the Tubes Employed in Low-Noise Amplifiers (Izmereniye setochnogo toka v lampakh, ispol'zuyemykh v usilitelyakh s nizkim shumom)

PERIODICAL: Priory i tekhnika eksperimenta, 1959, Nr 1, pp 85-89 (USSR)

ABSTRACT: It is known from the Nyquist theory that the noise produced by the grid current can be expressed by:

$$\overline{U_{sh.s.}^2} = \frac{eI_c}{\pi} \int_0^{\infty} \frac{R^2 F(\omega) d\omega}{1 + \omega^2 \tau^2} \quad (3)$$

where $\tau = RC$, I_c is the grid current; R is the grid leak of the tube and C is its input capacitance; function $F(\omega)$ in Eq (3) is formed by the product of the transfer functions of an integrating and a differentiating network; the time constants of the networks are $T_1 = T_2 = T$. Consequently,

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the grid current noise can be expressed by Eq (4), where $q = \tau/T$. If the tube contains a resistor R at its input, the noise due to this can be expressed by Eq (6). Provided the same function $F(\omega)$ is used, the integration of Eq (6) results in Eq (7). The maximum value of the thermal noise, expressed by Eq (7), occurs when the resistance is given by Eq (8); this value is given by Eq (9). On the other hand, the maximum value of the noise produced by the grid current is given by Eq (5). Consequently, the grid current can be expressed in terms of a ratio of the maximum grid current noise to the thermal noise and this is expressed by Eq (10). This equation can be used for determining the value of I_G .

By comparing Eqs (3) and (6), it is found that the relationship between the grid current noise and the thermal noise is expressed by Eq (15). This can also be used for determining I_G ; for example, if a value of R is determined such that the current noise is equal to the thermal noise, the grid current is given by Eq (16); here, R_0 is the value of R

Card 2/3 necessary to secure the equality of the two noises. The above methods were employed to measure the grid current in the tube

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Type 6Zh1P which were operated as triodes with an anode voltage of 60 V and a heater voltage of 6 V. The dependence of the total noise on the input resistance is illustrated in Fig 2. From this it is found that the grid current was $1.0 \cdot 10^{-10}$ A, when determined from Eq (11) (or from Eq 14), and it was 1.15×10^{-10} A when evaluated from Eq (16). The authors express their gratitude to F. M. Sobolevskaya for her help in the measurements, to S. N. Nikolayev for discussing the results, and to A. P. Komar for his interest in this work. The paper contains 3 figures and 2 references, of which 1 is English and 1 is Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR
(Leningrad Physics Engineering Institute of the Soviet Academy of Sciences)

SUBMITTED: February 5, 1958.

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SOV/120-59-2-27/50

AUTHORS: Vorob'yev, A.A., Korolev, V.A. and Solyakin, G.Ye.

TITLE: The Choice of Optimum Pass-band in an Amplifier Working
with an Ionization Chamber (Vybor optimal'noy polosy
propuskaniya v usilitele, rabotayushchem s
ionizatsionnoy kameroy)

PERIODICAL: Priory i tekhnika eksperimenta, 1959, Nr 2,
pp 95-102 (USSR)

ABSTRACT: A calculation is made of the optimum bandwidth of an
amplifier with two differentiating circuits. It is shown
that the introduction of the second differentiating
circuit completely avoids the influence of microphonic
effects and low frequency noise without deteriorating the
signal-to-noise ratio. The resolving power of an
ionization alpha-spectrometer is determined basically by
the noise in the first valve. When the leakage
resistance of the first valve is high enough thermal
noise may be neglected and only the contributions of
anode and grid current taken into account. Usually the
maximum signal-to-noise ratio is guaranteed by correct
choice of amplifier bandwidth and this usually means
inserting a differentiating and an integrating circuit.
This case has already been considered by Elmore in Ref 1.

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This scheme has a number of drawbacks; in particular the location of the differentiating circuit is difficult, since it is preferable to place it before the amplifier in order to avoid overloading on microphony, but also convenient to place the circuit within the middle of the amplifier when A.C. heaters are used. In the analysis for brevity an arrangement of one differentiator followed by one integrator is described as {1,1}; the cases {1,2} {2,2} are also considered. The spectral densities of the grid and anode currents are given by Eqs (1) and (2). For the three circuit combinations described above, expressions for the minimum value of noise are given by Eqs (8), (12) and (17). In the many curves which are presented two parameters are used; p which is the ratio of the time constants of the integrator and the differentiator circuits, and a which is defined in Eq (5). In calculating signal-to-noise ratio it is assumed that a rectangular voltage pulse is delivered from the ionization chamber. Signal-to-noise ratio is denoted by Q . In Fig 1 the signal-to-noise ratio is

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given by a solid line and the signal amplitude by the dotted lines. Figs 3, 4 and 5 show for the three circuit arrangements respectively the variation of signal-to-noise ratio with p for various pulse durations. Figs 6, 7 and 8 are the corresponding figures with p and a as parameters. Ionization chambers suffer from microphony at frequencies up to 100 c/s. By using two differentiating circuits the contribution to the microphony may be reduced with respect to that due to valve noise by a factor of approximately 100 at a frequency of 100 c/s; at lower frequencies this reduction is even more significant. It has so far been assumed that the voltage pulses are truly rectangular; in practice they have sloping fronts and if these slopes are linear it is possible to calculate easily the loss in amplitude as a function of the differentiating and integrating circuits. This loss is shown plotted in Figs 9 and 10 respectively for single and double circuits. Table 1 summarizes the amplitude loss for various rise times for the three types

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of circuit; this is experimental data. For all three circuits the relationship between amplitude loss and rise time is quadratic. In Table 2 experimental and calculated results are compared for various values of differentiator and integrator time constant; this table applies to the case of {1,2}. The authors thank

Card 4/4 M.F. Sobolevskaya and A.P. Komar.

There are 10 figures, 2 tables and 2 English references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-Technical Institute of the Academy of Sciences, USSR)

SUBMITTED: February 13, 1958

24(7)

AUTHORS: Vorob'yev, A. A., Komar, A. P., Korolev, V. A., SOV/56-37-2-32/56
Solyakin, G. Ye.

TITLE: The α -Spectrum of the Natural Mixture of Isotopic Samarium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 37, Nr 2(8), pp 546 - 548 (USSR)

ABSTRACT: In the present "Letter to the Editor" the authors report on investigations of the α -spectrum of Sm^{147} and the isotopic mixture by means of a pulse ionization chamber; the chamber was filled with chemically pure argon (99.9% Ar, +0.1% He). The measured α -spectrum of Sm^{147} is shown by Figure 1, it has a half width of 43 kev (when intensive α -emitters, Po^{210} , U^{234} , were used, the half width amounted to 50 kev). The energy of the α -particles of Sm^{147} was determined as amounting to (2.19 ± 0.01) Mev, which agrees well with the value mentioned in reference 6. Figure 2 shows the spectrum of the α -particles of the natural isotopic mixture (without collimation) and

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the energy interval of 2.0 - 2.8 Mev. The energy of the α -particles of Sm^{146} is (according to reference 7) equal to ~ 2.55 Mev; knowledge of this fact and of the entire background (within the range of 1.5 - 2.5 Mev - 1 pulse/hour) makes it possible to evaluate the upper limit of the Sm^{146} -content in the natural isotopic mixture and thus to determine the half lives: $T(\text{Sm}^{147}) = 10^{12}$ a and $T(\text{Sm}^{146}) = 5 \cdot 10^7$ a. The Sm^{146} -concentration in the natural isotopic mixture is not greater than $2.5 \cdot 10^{-6}$ % (the number of α -particles originating from Sm^{146} -decay does not exceed the background). According to a mass-spectrometric analysis the content would amount to $8 \cdot 10^{-5}$ % (Ref 8). There are 2 figures and 8 references, 1 of which is Soviet.

ASSOCIATION:

Leningradskiy fiziko-tehnicheskii institut Akademii nauk SSSR (Leningrad Physico-technical Institute of the Academy of Sciences, USSR)

SUBMITTED:

March 26, 1959

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S/056/60/038/005/003/050
B006/B07024.6600
26.2211

AUTHORS:

Bochagov, B. A., Komar, A. P., Solyakin, G. Ye.

TITLE:

The Kinetic Energy of the Photofission Fragments of U^{238} /9

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 38, No. 5, pp. 1374-1380

TEXT: The authors report on investigations of the photofission of heavy nuclei, particularly U^{238} , carried out with the help of two pulsed ionization chambers. A block diagram of the experimental arrangement is shown in Fig. 1. The synchrotron of the FTI AN SSSR (Institute of Physics and Technology of the AS USSR) supplied 70 Mev gamma radiation. Uranyl nitrate in the natural isotopic composition in the form of a deposit on a cellulose film served as the target. The film was covered on both sides by thin sheets of aluminum. The thickness of the film together with that of the aluminum was $30 \mu\text{g}/\text{cm}^2$. The thickness and the homogeneity of the uranyl-nitrate film were determined from the alpha spectrum of the natural uranium. Fig. 2 shows this spectrum taken from the side of uranyl nitrate. The thickness of the uranyl-nitrate film was $320 \mu\text{g}/\text{cm}^2$. According to

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The Kinetic Energy of the Photofission
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B006/B070

I. V. Chuvilo (Ref. 9), the fragment yield is due to U^{238} fission with an accuracy of 1% when uranium targets of natural isotopic mixture are used. In the experiments, every fission event is characterized by the energies E_1 and E_2 (corresponding to whether it was recorded in the first or in the second chamber). The distribution of the individual events in (E_1, E_2) is shown in Fig. 3 (contour diagram) as "horizontal" surfaces $W_{ik}(E_1, E_2)$, where $W_{ik} = n_{ik}/n_{ik \max}$, and n is the number of events. The remarkable thing about the surfaces $W_{ik}(E_1, E_2)$ is their symmetry for reflection at the vertical plane containing the principal diagonal $(E_1 = E_2)$. This symmetry shows the same emission probability of light and heavy fragments for a given direction. It follows from Fig. 3 that the most probable values of the energies of the fragments are 87 and 61 Mev. Fig. 4 which shows the fragment yield as a function of the masses $m_2/m_1 = E_1/E_2$ gives the value of the most probable mass ratio as 1.36. It is seen, therefore, that the ratio of the most probable masses (1.43) is not equal to the

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S/056/60/038/005/003/050
B006/B070

most probable mass ratio. (The same is true also of the neutron-induced fission of U^{235} and U^{233}) The W_{ik} surfaces are further characterized by the two symmetrically lying "hillocks" with "ridges" parallel to the coordinate axes. These diagrams have analogous forms for the neutron-induced fissions of other heavy nuclei. Fig. 5 shows the spectra of the total (kinetic) energy $\Sigma E = E_1 + E_2$ for different E_1/E_2 ; Fig. 6 shows the spectrum $\Sigma E = f(N)$. The peculiarities of the curves are discussed. Fig. 7 shows the fragment distribution $N = f(E_1)$; Fig. 8 shows the same for three different ranges of ΣE . These distributions have always two maxima of nearly the same height. The most probable value of ΣE is 150 ± 2 Mev, the half widths of the high and low energy peaks are 17 and 19 Mev, respectively. The measured values and also those obtained after correction for the source thickness and ionization defects are collected in a table. Yu. Morozov and B. K. Gormin are thanked for technical assistance. There are 8 figures, 1 table, and 13 references: 6 Soviet 4 US, 2 Canadian, and 1 German. ✓

Card 3/4

83570

The Kinetic Energy of the Photofission
Fragments of U^{238}

S/056/60/038/005/003/050
B006/B070

ASSOCIATION: Leningradskiy fiziko-tehnicheskiy institut Akademii
nauk SSSR
(Leningrad Institute of Physics and Technology of the
Academy of Sciences, USSR) X

SUBMITTED: August 26, 1959 (initially) and January 18, 1960 (after
revision)

Card 4/4

21112
S/089/61/011/006/009/014
B102/B138

21.6000

AUTHORS: Bochagov, B. A., Komar, A. P., Solyakin, G. Ye.,
Fadeyev, V. I.

TITLE: Kinetic energy of Th²³² photofission fragments

PERIODICAL: Atomnaya energiya, v. 11, no. 6, 1961, 540 - 543

TEXT: The kinetic energy distribution of Th²³² photofission fragments was determined in order to find the most probable fragment mass ratio, and to compare the results with those from 14-Mev neutron-induced Th²³² fission. The experimental method has been described by the authors in a previous paper (ZhETF, 38, 1374 (1960)). Only the recording apparatus was altered, to make the coordinates of any oscillographic point correspond to the kinetic energy of a fragment. 150 $\mu\text{g}/\text{cm}^2$ of thorium nitrate was used as a target, deposited on an aluminum-coated collodium foil of total thickness 30 $\mu\text{g}/\text{cm}^2$. The target was 2 m off the gamma source so that about 10 decay events could be recorded per minute. The results, which are graphically presented, were determined from 26,000 decay records. X

Card 1/2

Kinetic energy of Th²³²...

21412
S/089/61/011/006/009/014
B102/B138

The contour diagram for the fragment energy distribution shows that asymmetric, as well as symmetric fragmentations occur, and that the mass ratio m_2/m_1 diminishes as the mass of the disintegrating nucleus increases. For Th²³², U²³⁸ and Cf²⁵², m_2/m_1 is 1.56, 1.36, and 1.31, respectively. The figure 1.56 was determined from the fragment mass distribution. From the total energy distribution it can be seen that the most probable total energy $E = E_1 + E_2$ is lower and the half-width of the peak (45 Mev) higher, than the respective values for U²³⁸ photofission. The following numerical values for most probable fragment energy (Mev) were determined:

Heavy fragments: $52 + 2 + 6.8 = 61 \pm 2$

Light fragments: $89 + 2 + 5.6 = 97 \pm 2$

heavy + light f.: $143 + 2 + 12 = 157 \pm 3$

The authors thank the proton-synchrotron team of the FTI AN SSSR, and G. N. Nikolayev and K. Shvets for assistance. There are 4 figures, 1 table, and 4 references: 2 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: D. Hiller, D. Martin. Phys. Rev., 90, 581 (1953); R. Jensen, A. Fairhall. Phys. Rev., 109, 942 (1958).

Card 2/22

32426

S/020/61/141/006/002/021
B104/3112

Energy distribution of ...

be considered low. Effectiveness of recording of charged particles with $R^* > d$ decreases with increasing R^* . In this case, R^* is a value which approximately equals the particle path $d = 35$ cm (distance between electrode 1 and grid 2). The natural energy spectrum of α -particles produced in argon photodisintegration is constructed from the spectra obtained. The spectrum is shown in Fig. 3. Its maximum lies at 4.8 Mev, its half-width is 3.3 Mev. By a comparison with the spectrum calculated by the statistical theory, the difference of maxima was found to be 2 Mev. The deviation of the experimental from the theoretical value may be explained by the occurrence of the reaction

$A^{40}(\alpha n)S^{36}$ besides reaction $A^{40}(\gamma\alpha)S^{36}$ or by a Coulomb penetration factor higher than used in the calculation. The authors thank the team of the synchrotron of the Physicotechnical Institute AS USSR for work performed. There are 3 figures and 9 references: 3 Soviet and 6 non-Soviet. The three references to English-language publications read as follows: M. E. Toms, I. McElhinney, Phys. Rev., 111, 561, (1958); M. M. Shapiro, Phys. Rev., 90, 171 (1953); G. A. Ferguson, J. Halpern et al., Phys. Rev., 95, 776 (1954).

Card 2/43

32466

Energy distribution of ...

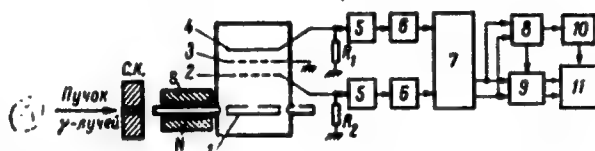
S/020/61/141/006/002/021
B104/B112

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR
(Physicotechnical Institute of the Academy of Sciences
USSR)

SUBMITTED: September 22, 1961

Fig. 1. Block diagram of the experimental arrangement.

Legend: (A) Bundle of γ -rays; (C.K.) lead collimator; (1) electrode;
(2) grid; (3) grid; (4) anode; (5) preamplifier; (6) amplifier;
(7) selector; (8) coincidence circuit; (9) brightening circuit; (10) impulse
shaper; (11) recording device (electron-beam tube).



Card 3/4
3

43362

S/056/62/043/005/008/058
B183/B102

24.1.60
AUTHORS:

Bochagov, B. A., Komar, A. P., Solyakin, G. Ye.

TITLE:

The energy distribution of photofission fragments from U^{238} nuclei for various maximum energies of a γ -quantum bremsstrahlung spectrum

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 5(11), 1962, 1611 - 1615

TEXT: The bremsstrahlung spectrum of a synchrotron having maximum energies of $E_{\gamma, \text{max}} = 17.5, 30$ and 50 Mev was used for plotting contour diagrams of the kinetic energy distribution of photofission fragments from U^{238} nuclei. A double ionization chamber with an oscilloscope connected to two deflection systems was used as detector. A collodion film coated with bismuth on both sides, on one of which a layer of U anyl nitrate was condensed, served as target. 15000 to 20000 fission events were recorded in each series of measurements. The contour diagrams show that in symmetric fission the yield probability increases with increasing $E_{\gamma, \text{max}}$. The kinetic energy at the moment in which the fission products fly apart

Card 1/2

L 15124-65 EWT(m) DIAAP/SSD/AFWL DM

ACCESSION NR: AP4045337

S/0089/64/017/003/0219/0220

AUTHOR: Bochagov, B. A. ; Vasil'yev, S. S. ; Semenchuk, G. G. ; Solyakin,

G. Ya.

TITLE: Fission of U²³⁸ nuclei by alpha-particles of 26.5 Mev energy

SOURCE: Atomnaya energiya, v. 17, no. 3, 1964, 219-220

TOPIC TAGS: nuclear fission, U²³⁸ fission, -particle, compound nucleus, thermal neutron

ABSTRACT: B. A. Bochagov has shown in a previous work that the dependence of the total kinetic energy E_n of the fragments on the mass ratio $R (\geq 1.3)$ in fission by thermal neutrons and in spontaneous fission, is described by the formula

$$E_n = aA' - (R + 1)b$$

where $A' = A - \nu$, A is mass number of the compound nucleus, ν - average number of prompt neutrons, a and b are coefficients, equal 1.07 and 33.3 Mev, respectively. The analysis of data on photofission of U²³⁸ and Th²³², and of fission of U²³⁵ and Th²³² by neutrons of 14 Mev energy showed that the formula is valid in the first case, whereas b is smaller in the second case. The author suggested

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ACCESSION NR: AP4045337

that this is connected with the linear momentum contributed by the bombarding particle. In the present work, the kinetic energy of the fragments of U^{238} -nucleus split by α -particles of 26.5 Mev, that is, of much larger momentum, was measured. The experiments were conducted with the cyclotron of the Institute for Nuclear Physics MGU. The coefficient b was found to be actually smaller, thus supporting the author's suggestion. The authors are grateful to A. P. Komana, Yu. A. Vorob'ev, I. B. Teplov, and A. F. Tulinov for help. Orig. art. has: 1 figure

ASSOCIATION: None

SUBMITTED: 17Jan64

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 004

Card 2/2

BOCHAGOV, B.A.; VASIL'YEV, S.S.; SEMENCHUK, G.G.; SOLYAKIN, G.Ye.

Energy characteristics of fragments resulting in the fission of Th^{232}
and U^{238} nuclei by charged particles. IAd. fiz. 1 no.3:461-470 Mr
'65. (MIRA 18:5)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR i Institut
yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

SOLYANKOV, I.P., gornyy inzhener.

~~REASON FOR DECLASSIFICATION~~

Pressing tasks of the hydrogeological service in the Donets
Basin. Ugol' 29 no.2:28-30 F '54. (MLRA 7:1)
(Donets Basin--Mine surveying)

SOLYAKOV, I.P.

Determining, stabilized and reduced flow based on short-term well
pumping data. Geol. zhur. 17 no.2:68-72 '57. (MLRA 1C:11;
(Water, Underground)

SOLYAKOV, I.P.

Using the partial drainage method under various hydrogeological conditions. Geol.zhur. 10 no.6:94-105 '58. (MIRA 12:1)
(Mine drainage)

SOLYAKOV, I. P., Candidate of Geolog-Mineralog Sci (diss) -- "The determination of losses and level lowerings based on data from short-term pumping out under the conditions of the Donets Basin". Kiev, 1959. 21 pp (Min Higher Educ Ukr SSR, Kiev State U im T. G. Shevchenko), 150 copies (KL, No 21, 1959, 113)

SKABALLANOVICH, Ivan Antonovich. Prinimali uchastiye: ZAYEZZHEV, N.M.;
SOLYAKOV, I.P. VOLOD'KO, I.P., retsenzent; VLADIMIROV, A.G.,
red.; ENTIN, M.L., red.isd-va; BYKOVA, V.V., tekhn.red.

[Method of trial pumpings] Metodika opytnykh otkachek. Moskva,
Gos.nauchno-tekhn.isd-vo lit-ry po geologii i okhrane neдр,
1960. 111 p. (MIRA 13:10)
(Mine drainage)

SOLYAKOV, I.P.

Underground waters of the Donets Basin and the possibility of their
use for medicinal purposes. Vop. kur., fizioter. i lech. fiz. kul't.
26 no. 346-349 J1-Ag '61. (MIRA 15:1)

1. Trez "Artemuglegeologiya".
(DONETS BASIN--WATER, UNDERGROUND)

1. V. I. ... Rakh.; ...
KAI ...

... of the chlorination of vanadium containing
... (KAI ...)

... Submitted November 2, 1964.

SOLYAKOV, V.K.

Calculating the rate of initial heating of fuel by solid heat-transfer agents. Nauch.dokl.vys.shkoly; energ. no.3:127-132 '58. (MIRA 12:1)

1. Rekomendovano kafedroy tekhnologii vody i topliva Moskovskogo energeticheskogo instituta.
(Fuel--Research)

SOLYAKOV, V. K. Cand Tech Sci-- (diss) "Study of the ^{heat treatment} ~~thermal reprocessing~~
of solid fuel (with a ^{solid} ~~hard~~ heat-transfer agent) ^{applicable to} ~~in conformity with~~ the power,
gas, and chemical flow-sheet of its combined utilization." Mos, 1959. 19 pp
with ^{MANUSCRIPT} ~~diagrams~~ (Min of Higher and Secondary Specialized Education RSFSR. Mos
Order of Lenin Power Engineering Inst), 150 copies (KL, 48-59, 115)

SOLYAKOV, V.K.

Experimental investigation of thermal processing of lignite
for its utilization in fuel engineering. Nauch.dokl.vys.shkoly;
energ. no.1:207-214 '59. (MIRA 12:5)

1. Rekomendovana kafedroy tekhnologii vody i topliva Moskovskogo
energeticheskogo instituta.
(Lignite)

SOLYAKOV, V.K.

Experimental investigation of the thermal processing of
lignite with a solid heat transfer agent. Nauch.dokl.vys.
shkoly; energ. no.2:275-282 '59. (MIRA 13:1)

1. Rekomendovana kafedroy tekhnologii vody i topliva Moskovskogo
energeticheskogo instituta.
(Lignite)

88271

S/170/61/004/001/011/020
B019/B056

11.9100

AUTHORS: Stel'makh, G. P., Solovayev, V. K.

TITLE: The Heating of Loose Material by a Solid Heat Carrier

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1961, Vol. 4, No. 1,
pp. 71-75

TEXT: The authors developed an analytical method for calculating the heating temperature of a cold disperse medium when mixed with a burning disperse heat carrier in consideration of the development of a gas phase and in the case of thermal decomposition. The heat exchange during mixing of cold with hot material is described by the following system of equations:

The heat balance equation: $-G_1 C_1 dT_1 + q_2 dG_2 = G_2 C_2 dT_2$ (1)

Cooling of the heat carrier: $-G_1 C_1 dT_1 = \alpha_1 S_1 G_1 (T_1 - T_2) dt$ (2)

The heating of the cold material: $G_2 C_2 dT_2 = \alpha_2 S_2 G_2 (T_1 - T_2) dt + q_2 dG$ (3)

G_1 here denotes the constant mass of the heat carrier, $G_2 = 1 - G_1$, where

G_2 is the liberated quantity of gas. T_1 and T_2 are the temperatures of the

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The Heating of Loose Material by a Solid
Heat Carrier

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B019/B056

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heat carrier and of the cold material respectively. In order to be able to integrate the system (1) to (3), the functions $G_2(T_2, \tau)$ or $S_2(T_2, \tau)$, the specific heats $C_2(T_2, \tau)$ and $C_1(T_1)$, and the thermal effect $q_2(T_2)$ must be known, and likewise the dependence of the heat exchange coefficients on the intensity of the gas formation $\alpha_1 = \alpha_1(dG_2/d\tau)$, $\alpha_2 = \alpha_2(dG_2/d\tau)$.

Confining oneself to linear temperature dependence of the gas generation, the following relations are obtained:

$$\frac{1 + A_1 - A_2 T_2 - A_3 T_2^2}{T_{1-0} - T_2 - A_1 T_2 + \frac{A_2}{2} T_2^2 + \frac{A_3}{3} T_2^3} dT_2 = \left\{ \frac{\alpha_1 S_1}{C_1} + \frac{\alpha_2 S_2 (1 - a(T_2 - T_{2-0})) (T_1 - T_2)}{(1 - a(T_2 - T_{2-0})) (C_0 + \beta (T_2 - T_{2-0})) + a q_2} \right\} d\tau$$

where $A_1 = (C_0 + a q_2)/G_1 C_1$, $A_2 = (a C_0 - \beta)/G_1 C_1$, $A_3 = a \beta / G_1 C_1$, and

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The Heating of Loose Material by a Solid
Heat Carrier

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B019/B056

$T_{1-0}^* = T_{1-0} + T_{2-0} + A_1 T_{2-0} - A_2 T_{2-0}^2 / 2 - A_3 T_{2-0}^3 / 3$. T_{1-0} and T_{2-0} are the initial temperatures of the media. The integration of the above expression for two special cases is discussed, in which an exponential law is assumed for the generation of gas. A. V. Dykov, O. A. Tsukhuncva, and R. D. Salamandra are mentioned in this paper. There are 10 Soviet references.

SUBMITTED: June 23, 1960

X

Card 3/3

BELOSEL'SKIY, B.S.; BI TSZE-TSZIN [Pi Tsê-ching]; SOLYAKOV, V.K.

Heat capacity and desorptive ability of aluminosilicate
catalysts [with summary in English]. Inzh.-fiz. zhur.
4 no.9:104-107 S '61. (MIRA 14:8)

1. Energeticheskiy institut, g. Moskva.
(Heat capacity) (Desorption) (Aluminosilicates)

GOLUBTSOV, V.A.; SOLYAKOV, V.K.

Certain characteristics of the thermal conversion process of fuel
with a fine-grained solid heat-transfer agent. Energotekh.
ispol'. topl. no.2:138-145 '62. (MIRA 16:5)

1. Chlen-korrespondent AN SSSR (for Golubtsov).
(Coal—Carbonization)

SOLYAKOV, V.K.; STEL'MAKH, G.P.

Calculating the heating of a noninert fine-grained material by a
solid heat-transfer agent. Energotekh. ispol'. topl. no.2:
146-152 '62. (MIRA 16:5)
(Granular materials) (Heat--Transmission)

L 38087-65 EWG(j)/EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/
EWP(k)/EWP(t)/EWP(b) Pab-10/Pr-4/Pf-4/Ps-4/Pt-10/Pu-4 JD/JW/GS/WH
ACCESSION NR: AT5003512 S/0000/64/000/001/0048/0057 65
B+1

AUTHOR: Mustafina, F. N.; Solyakov, V. K.

TITLE: Experimental industrial production of calcined high porosity carbon materials

SOURCE: Konstruktsionnyye uglegrafitovyye materialy (Carbon and graphite construction materials); sbornik trudov, no. 1. Moscow, Izd-vo Metallurgiya, 1964, 48-57

TOPIC TAGS: porous material, carbon, granule formation, pressing, quality control

ABSTRACT: Two methods for manufacturing calcined high porosity carbon materials are tested under industrial conditions: preparation of the charge on the basis of coke fractions of narrow granulometric composition and putting various pore forming additives into the charge. Ammonium chloride, sawdust and lignin were used as the pore forming agents in making high porosity materials. It was found that ammonium chloride has definite advantages

Card 1/2

L 38087-65

ACCESSION NR: AT5003512

for industrial applications. The technology is worked out for industrial production of materials with a porosity of 40 and 50% in the form of blanks with a diameter of 165 mm and a height of 250 mm using ammonium chloride. It is shown that it is possible to produce blanks with the same overall dimensions using sawdust. Satisfactory results are obtained in using ammonium chloride for making blanks with measurements of 300x250 and 200x200x600 mm. A study is made of the properties of some of the materials produced according to various technological processes and having pores of various dimensions. It is shown that the porosity of the materials obtained is almost completely open. Orig. art. has: 2 figures, 7 tables.

ASSOCIATION: none

SUBMITTED: 20Dec63

ENCL: 00

SUB CODE: MT

NO REF SOV: 002

OTHER: 001

nic
Card 2/2

SOLYAKOV, V.K., kand.tokhn.nauk

Conference on power-engineering use of coal from the Kansk-Achinsk
Basin. Teploenergetika 12 no.10:93-95 0 '65.

(MIRA 18:10)

Structure of Aromatic Nitramines. II. Infrared Absorption Spectra and

Structure of Arylnitramines (Aryl Nitraminic Acids), page 1325, "Sbornik statey po obshchey khimii" (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

State Inst of Applied Chemistry

Structure of Aromatic Nitramines. III. Raman Spectra and Structure of the

Sodium Salts of Arylnitramines, page 1332, Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1963, Pages 1620-1626.

State Inst of Applied Chemistry

SOLYANIK, L. L.; RYKOVA, I. V.; and KOROTKAYA, B. A.

Structure of Aromatic Nitramines. IV. Tautomeric Rearrangement of Arylnitramine Acids to Aryl - B - H Oxohydrates, page 1332, Zhurnal staty no obshchey khimii (Collection of Papers on General Chemistry). Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

State Inst of Applied Chemistry

S/069/63/025/002/008/010
A057/A126

AUTHORS: Solyanek, Ye.G., Zaytseva, K.A., Orlov, V.N.

TITLE: Method for the preparation of a highly dispersed mist with a large water content

PERIODICAL: Kolloidnyy zhurnal, v. 25, no. 2, 1963, 234 - 237

TEXT: A method and an appropriate device for the preparation of a highly dispersed mist (mean radius of a droplet is 1.5μ) with a high water content (about 200 g/m^3) was developed. This kind of supercooled mist allows a new approach to condensation and coagulation processes in aqueous aerosols. The principal features of the device are: a metallic, insulated 40 l container, with a heater for the water and a wire basket for the insertion of dry ice. The water is heated to 30°C and 1.5 kg dry ice put into the wire basket. The intensity of evaporation changes with the surface of evaporation thus changing the evolution of the mist, its water content, and dispersity. After a certain time the surface of evaporation stabilizes and herewith the properties of the evolved mist. Further investigations on the effect of isothermic and non-isothermic conditions

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Method for the preparation of a highly

S/069/63/025/002/008/010
A057/A126

respectively on the droplet size will be carried out by means of the described device. There are 6 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN USSR, Kiyev (Institute of General and Inorganic Chemistry of the AS UkrSSR, Kiyev)

SUBMITTED: January 18, 1962

Card 2/2

DUKHIN, S.S.; BEREZHNIAYA, I.N.; SOLYANEK, Ye.G.; PEREKUPKA, I.A.

Role of thermophoretic and diffusion forces in the generation of ice crystals near cold surfaces. Part 2: Theoretical evaluation and experimental measurements of the yield of crystals generated near a spherical dry ice granule and a metallic sphere as dependent on the temperature of their surfaces. Koll. zhur. 26 no.6:662-669 N-D '64 (MIRA 18:1)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut, Kiyev.

SOLYANIK, A.

And now the account is imminent. NTO 6 no.1:38-40 Ja '64.

(MIRA 17:2)

1. Uchenyy sekretar' soveta Nauchno-tekhnicheskogo obshchestva Khar'-
kovskogo traktornogo zavoda.

AUTHOR: Solyanik, A.M. 117-58-6-23/36

TITLE: Technical Propaganda and the Exchange of Advanced Experience
(Tekhnicheskaya propaganda i obmen peredovym opytom)

PERIODICAL: Mashinostroitel', 1958, Nr 6, pp 33-35 (USSR)

ABSTRACT: In the Khar'kov Tractor Plant, technical propaganda plays an important role. The Plant Director P.Ye. Sablev, the Chief Engineer I.A. Serikov and the Head of the Planning Department, D.R. Manevich take active part in lecturing. More than 100,000 drafts are sent to other plants every year. The plant is visited by workers from all parts of the USSR. Technical conferences are attended by many workers of the plant. In one conference more than 1,000 tractor-builders took part. In 1957 alone, more than 300 measures were taken to ensure exchanges of experience. In clubs, technical stations and cabinets more than 200 papers were read which were heard by more than 10,000 workers of the plant. In more than 250 movie sessions, technical films were demonstrated on "High Speed Metal Cutting", "Modern Metal Cutting Machines", "The Tractor Diesel", etc. In the same year, 12 exhibitions were organized which were connected with conferences, meetings of the inno-

Card 1/2

Technical Propaganda and the Exchange of Advanced Experience 117-58-b-23/36

vators, etc. The innovators made more than 6,000 suggestions. The application of 2,618 of these suggestions brought savings of more than 15 million rubels. In the library of the plant there are more than 80,000 books, pamphlets and reference books. The library receives about 100 Soviet and 50 foreign technical journals.

ASSOCIATION: Khar'kovskiy traktornyy zavod (Khar'kov Tractor Plant)

AVAILABLE: Library of Congress

Card 2/2 1. Propaganda-Effectiveness

SOLYANIK, A.M.

Competition in technical promotion and introduction of
advanced experience. Mashinostroitel' no.3:25 Mr '60.
(MIRA 13:6)
(Kharkov--Tractor industry--Technological innovations)

SOLYANIK, A. M.

Improving tractor parts. NTO 4 no.5:36 My '62. (MIRA 15:5)

1. Uchenyy sekretar' soveta Nauchno-tekhnicheskogo obshchestva
Khar'kovskogo traktornogo zavoda.

(Kharkov--Tractor industry)

SOLYANIK, A.M.

Tractor constructors introduce advanced experience. Mashinostroitel'
no.8:4 Ag '62. (MIRA 15:8)

(Kharkov--Tractor industry)

SOLYAKIN, A.V.

Cketyre Pokhoda

Four Expeditions to the Antarctic Regions Moskva, 120-40

Pravda 1950

29 p. illus.

"Literatru": p. 33

At head of title: Vsesoyuznoye Doshchestvo Po Rasprostraneniyu
Politicheskikh i Nauchnykh Znanii

Antarctic as a new Region of Soviet Whale Fishing Fleet

"Slave", which undertook expeditions to the Antarctic Regions.
And Whale Fishing in General

СЛУЖБА БЕЗОПАСНОСТИ. МОСКВА, ИЗД-ВО ЗНАНИЙ, 1952. 29 П.
(ВЫСШЕЕ ПОСОБИЕ ПО ОБЩЕЙ ПОЛИЦИИ. КНИГА I "ПОНЯТИЕ
ОБЩЕЙ ПОЛИЦИИ. 1952, ЧАСТЬ 2, К. 51)

SOLYANIK, A.

SOLYANIK, A.; YARTSEV, G., redaktor .

[Voyage to the Antarctic; story of the "Slava" whaleboat flotilla] Reis v Antarktiku. Rasskaz o kitoboiakh "Slavy". Moskva, Izd-vo "Pravda", 1954. 63 p. (Biblioteka "Ogonek", no.22)

(MIRA 7:5)

(Antarctic regions--Whaling) (Whaling--Antarctic regions)

SOLYANIK, A.N.

Sea hunters. IUn.nat.no.1:5-7 Ja '58.

(MIRA 10:12)

1. Kapitan-direktor kitoboynoy flotilii "Slava."
(Whaling)

SOLYANIK, A.N. [Solianyk, Oleksii Mykolaiovych], Geroy Sotsialistichnoi
~~Pratsi~~

Twelve voyages to the Antarctic (to be continued). Nauka i
zhyttia 8 no.3:56-59 Mr '58. (MIRA 12:9)
(Antarctic regions--Whaling)

SOLIANIK, O.M. [Solianyik, O.], Geroy Sotsialisticheskogo Truda

Twelve voyages to the Antarctic (continuation). Nauka i zhyttia
8 no.4:55-58 Ap '58. (MIRA 13:5)

1. Kapitan-direktor Pervoy Sovetskoy Antarkticheskoy kitoboynoy
flotilii i kapitan kitobazy "Slava."
(Antarctic regions--Whaling)

SOLYANIK, O.M. [Solianyk, O.M.], Geroy Sotsialisticheskogo Truda

Twelve voyages to the Antarctic. Nauka i zhyttia 8 no.5:
54-56 My '58. (MIRA 13:4)

1. Kapitan-direktor flotilii i kapitan kitobazy "Slava."
(Antarctic regions--Whaling)

SOLYANIK, O.M. [Solyanik, O.M.], kapitan, Geroy Sotsialisticheskogo Truda.

Twelve voyages on the Atlantic. Nauka i zhyttia 8 no.8:58-
60 Ag '58. (MIRA 12:1)

1. Direktor flotilii i kapitan kitobazy "Slava."
(Whaling)

SOLYANIK, Aleksey Nikolayevich, Geroy Sotsialisticheskogo Truda;
KOROTKEYEV, N.I., red.; SAVCHENKO, Ye.V., tekhn.red.

[Under the Southern Cross] Pod sozvezdiem Iuzhnogo Kresta.
Moskva, Izd-vo "Znanie," 1960. 75 p.

(MIRA 14:4)

1. Kapitan-direktor antarkticheskoy kitoboynoy flotilii
"Sovetskaya Ukraina" (for Solyanik).
(Antarctic regions--Whaling)

SOLYANIK, B.L., inzh.; YASTREBENETSKIY, M.A., kand. tekhn. nauk; KOMAROV,
G.P., inzh.

Determination of the reliability of automatic regulators under
operational conditions in thermal electric power plants. Teplo-
energetika 12 no.4:29-32 Ap '65. (MIRA 18:5)

1. Tsentral'nyy nauchno-issledovatel'skiy institut kompleksnoy
avtomatizatsii i Khar'kovskoye upravleniye energokhozyaystva.

ACC NR: AP700.0007

(A)

SOURCE CODE: UR/0118/66/000/012/0111/12

AUTHOR: Yastrebenetskiy, M. A. (Candidate of technical sciences); Solyanik, B. L. (Engineer)

ORG: none

TITLE: Reliability of industrial automation equipment

SOURCE: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 12, 1966, 41-44

TOPIC TAGS: reliability, automatic control reliability, industrial automation, automatic regulation

ABSTRACT: Methods are set forth of collecting and processing data on reliability of automatic regulators and measuring instruments at large metallurgical and power plants. Special trouble logs and repair logs are recommended for recording all equipment failures and repairs. Also, a list of installed equipment (dates of manufacture and installation, operating conditions) and operating-time records should be made available for reliability-calculation purposes. Dependent primary failures should be combined with secondary failures wherever possible in order to make the flow of failures ordinary. If observation conditions are stable, equipment operates at room temperature, and the quantity of equipment is constant, the flow of failures may be regarded as Poisson-type. The concepts of the rate of failure, failure dispersion, mean time between failures, confidence interval, statistical veracity, repair time, and repairability are explained; simple formulas and curves for estimating these reliability characteristics are given. Orig. art. has: 2 figures, 11 formulas, and 1 table.

Card 1/1 SUB CODE: ¹³09, 14/SUBM DATE: none

UDC: 66.05.002.5:62.19

SOLYANIK, D., inzh. po tekhnike bezopasnosti

We reduced accidents of meat cutters. Okhr.truda i sots.strakh. 4
no.11:17 N '61. (MIRA 14:12)

1. Luganskiy myasokombinat.
(Packing houses--Safety measures)

SOLYANIK, D.V.

Device for automatic checking of hoisting cables, Trudy MakNII
12: Vop. gor. elektromekh. no.4:324-338 '61.

(MIRA 16:6)

(Wire rope—Testing)

(Electromagnets)

(Automatic control)

SOLYANIK, D.V., inzh.

Net methods for the planning and management in the machinery
industry. Mashinostroenie no.4:21-22 51-Ag '65.

(MIRA 18:8)

SOLYANIK, F.A.

Experience in the mechanization of the removal of the soil cover
from sugar beet piles. Sakh.prom. 36 no.9:38-39 S '62.
(MIRA 16:11)

1. Nizhne-Kislyayskiy sakharnyy zavod.

ACC NR: AR6031890 SOURCE CODE: UR/0058/66/000/006/E095/E095

AUTHOR: Turyanitsa, I. D.; Chepur, D. V.; Golovey, M. I.; Solyanik, E. Yu.;
Gurzan, M. I.

TITLE: Specific characteristics of antimony iodide photoconductivity and absorption

SOURCE: Ref. zh. Fizika, Abs. 6E749

REF SOURCE: Sb. Tezisy dokl. k XIX Nauchn. konferentsii, Uzhgorodsk. un-t,
1965, Ser. fiz. Uzhgorod, 1965, 58-65

TOPIC TAGS: iodide, antimony, antimony iodide, x ray structural analysis,
dark current, main absorption band

ABSTRACT: The photoelectrical and optical properties of SbI_3 specimens obtained by crystallization from the vapor phase in air or vacuum were investigated. X-ray structural analysis showed that the specimens obtained were single-crystals and that those obtained under vacuum were more perfect than those grown in air. The dark current depends exponentially on the temperature and has an activation energy of 0.9 ev. The width of the forbidden band determined on the basis of the longwave boundary of the main absorption band corresponds to 2.14 ev. It follows, therefore,

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ACC NR: AR6031890

that SbJ_3 conductivity is due to impurities. The spectral characteristics of SbJ_3 photoconductivity is selective and contains 2 maxima in the vicinity of 4500 and 5500 Å. Apparently the presence of a photoconductivity maximum in the region of the longwave boundary of the absorption band is related to the dependence of the carriers' life on the wavelength. It was observed that an increase in temperature resulted in a decrease of the forbidden-band width with a temperature coefficient equal to $16 \cdot 10^{-4}$ ev/degree. F. Nad'.

SUB CODE: 20/

Card 2/2

SOLYANIK, G.A. [Solianyik, H.O.]

Brief survey of the flora and fauna of Zmeinyy Island. Nauk.zap.Od.
biol.sta. no.1:156-157 '59. (MIRA 14:7)
(Zmeinyy Island--Natural history).

SOLYANIK, G.A.

Find of a banded Arctic tern *Sterna paradisae* Brünn in Antarctica.
Inform.biu.Sov.antark.eksp. no.11:51-52 '59. (MIRA 13:5)
(Antarctic regions--Terns)
(Birds--Migration)

SOLYANIK, G.A.

The "kitchen" of ring-billed gulls. Inform.biul.Sov.antark.eksp.
no.12:50 '59. (MIRA 13:6)
(South Georgia--Gulls) (Animals, Food habits of)

SOLYANIK, G.A., mladshiy nauchnyy sotrudnik

Some observations on birds on Bouvet Island. Inform.biul.
Sov.antark.eksp. no.13:34-37 '59. (MIRA 13:8)

1. Odesskaya biologicheskaya stantsiya.
(Bouvet Island--Birds)

SOLYANIK, G.A., mladshiy nauchnyy sotrudnik

Mass catches of *Euphausia superba* made with a variable-depth
trawl from the board of a whaler. Inform.biul.Sov.antark.eksp.
no.14:29-30 '60. (MIRA 13:6)

1. Odesskaya biologicheskaya stantsiya.
(Antarctic regions--Euphausiidae)
(Trawls and trawling)

SOLYANIK, G.

Commercial krill fishery. Inform.biul.Sov.antark.eksp. no.41:61 '63.
(MIRA 17:1)